Report
Analysis and Comments
Public Health Data (PHAN)

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April 2011

North Central District Health Department

(Counties: Antelope, Boyd, Brown, Cherry, Holt, Keya Paha, Knox, Pierce, Rock)

Contents

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SUMMARY

This document has been prepared for the North Central District Health Department using Public Health Agencies of Nebraska (PHAN) data as the primary source. The intent is to summarize trends in data and differences between the Health District (HD) and Nebraska. The observations in this report are based on the application of formulas to evaluate "dependent crude rates/ratios" (Crude Rate Analysis), comparing the HD rates or percents for an indicator with those of the state to determine whether or not those differences are significant. These observations are also placed in the context of other reports where appropriate, including the Behavior Risk Factor Surveillance System (BRFSS 2007-2008), the 2005 Data Book produced by the Nebraska Health Information Project, prior assessments, and state profiles.

District Demographics

- The land area of the district comprises one-fifth (19%) of the land area of Nebraska, while their population is 2.5% of the state population.
- Like much of rural Nebraska, the population in the district is declining, 11.4% in the last decade, and it is aging.
- Nearly one-third of the HD population is in the 45-64 age demographic, compared to 25% for Nebraska.
- One in five persons in the district is over the age 65 (NCDHD, 20%; NE, 13%).
- Just under half (49%) of the health district (HD) population is under the age 45, compared to nearly two-thirds (61%) for Nebraska.

Access

Medical practitioners. A key factor in access is the number of medical practitioners who serve an area. As might be expected, the population/practitioner ratio is higher than for Nebraska. In NCDHD, there are 1,206 persons per physician; in the remainder of Nebraska, there are 434 persons per physician, and 441 in Nebraska as a whole. The number of primary care physicians serving the area has stayed the same since 2005 (37); the number of dentists has decreased from 21 in 2005 to 20 in 2010; pharmacists increased from 35 (2005) to 39 (2010); and the numbers of RNs and LPNs has remained about the same. A closer look at the number of counties with shortage:

- 9 counties: obstetrics/gynecology; psychiatrics.
- 8: pediatrics.
- 7: family practice, internal medicine.
- 6: general surgery.
- 5: occupational therapy, pharmacy

Health Insurance. The Healthy People (HP) goal for health insurance is 100%. In Nebraska 84.1% of those ages 18-64 have health insurance compared to 80.2% for the NCDHD (2009). The percent *without insurance* increased about 1% for both the state and the HD from 2007-2009. In real numbers, PHAN reports that of the 25,571 HD residents who are 18-64, 5,063 do not have insurance coverage.

- While the proportion of the HD population with a personal health care provider increased in 2009 (from 80 to 86%), the proportion who visited a doctor in the past 12 months has steadily decreased since 2007 from 59% to 54%.
- Males in the HD are less likely than females to have a personal doctor/health care provider (those who did not have: male, 25%; female, 12%). About half (47%) of males reported visiting a doctor for a routine checkup in the past year compared to 70% of females.

Physical Activity

For the HD, recent PHAN data show that participation in *regular vigorous activity* increased in 2009, and data also show an increase in regular sustained physical activity from 2005 to 2009 (34.3% to 51%). On the other hand, one in four adults (29%) engaged in no *leisure time* physical activity during 2009, compared with 24 percent in the state.

Weight

Weight data can be compared within the HD from year to year, against the comparable state figures, or against the HP 2020 goals. The percent of adults at a healthy weight for 2009 is comparable to the state rate (NCDHD, 36.4%; NE, 36.2%). Both are above the HP 2020 Goal. At the same time, For NCDHD, the prevalence of overweight *decreased* from 2007-2009, though in 2009 the proportion of overweight for the HD was significantly higher than for NE.

- Note that there are differences between the PHAN data and the Nebraska Behavioral Risk Factor Surveillance System Report: 2007-2008. Those data show the weighted percent for obesity in the HD to be 26.4%, and for overweight to be 40.3%. The percent at healthy weight would be 33.3% for the district (compared to 36.4% in PHAN). One advantage of the PHAN data is that it shows trends from year to year, presumably with comparable data.
- Obesity for the HD *increased significantly* from 2007-2009, though in two of those years it is significantly lower than the reported NE rate.
- With respect to the Healthy People targets, the percent of obese and healthy weight may present considerable opportunities for improvement, depending on the goal and year selected. The 2010 goal, for example, was to reduce the prevalence of obesity to 15%, while the 2020 goal is 30.6% for a US rate of 34%, both of which are higher than the current Nebraska proportion. The previous healthy weight target was 60%, now it is 33.9%.

Diet and Nutrition

- Diet and nutrition for the residents in the HD is significantly better than for the state. Though there was no improvement from 2007-2009 for the HD, percentages for the state declined. The proportion is still a long way from the 2010 goals, which are 75% for fruits and 50% for vegetables. Nebraska does not have a published goal for nutrition (The metrics for the 2020 goals changed considerably and do not relate to the figures for 2009).

Tobacco

Overall, rates have been constant or have shown some decline; however, in Nebraska, rates for chew tobacco tend to be higher than those nationally, and this is reflected in this HD. Among high-school students, reductions were seen in all forms of tobacco use statewide (five sub-objectives).

- The use of smokeless tobacco use is significantly greater in the HD compared with Nebraska. It is nearly eight times the Nebraska/US goal. In the *Nebraska Behavioral Risk Factor Surveillance System Report 2007-2008*, the HD has the highest rate of males 18+ who currently use smokeless tobacco (p. 400).
- Smoking prevalence and the use of smokeless tobacco decreased through for the state and for NCDHD.
- Smoking prevalence in the HD is significantly lower than that of the state. Overall, smoking prevalence is about 31% above the goal.
- Tobacco related deaths in the HD (105.3 per 100,000) and related hospitalizations (243.5/100,000) are not significantly different from the state rate.

Substance Abuse

PHAN data for chronic heavy drinking show significant differences by gender within the HD and within the state. Within the HD, the proportion of male chronic heavy drinkers has increased during the three years from 2007-2009; it has also increased for the females within the HD.

- Chronic heavy drinking for combined genders is not *significantly different* from the state in 2009. It is significantly higher for males within the HD when compared to males across the state for all three reporting periods. The rate for HD females is lower in 2007 and 2008, but not different in 2009.
- Youth drinking data are not disaggregated for the HD. The prevalence of binge drinking among youth is nearly three times the Healthy People 2020 Goal (20%: 8.5%).
- The rate for alcohol related deaths is not significantly different from the rate for the state; and the rate for hospitalization for alcohol related disease is significantly lower than that of the state.

Social and Mental Health

According to PHAN data, the HD rate of suicide is statistically the same as that of the state, while the rate for inpatient hospitalization for self-inflicted injury is significantly lower than that of the state. The HD suicide rate is also the same as the HP 2020 Goal is 10.2, which is based on a 10% improvement of the 2007 baseline of 11.3/100,000. For Nebraska the 2010 target was to reduce the deaths due to suicide to no more than 4.8 deaths per 100,000 population.

Diabetes

The 2020 Goal for *diagnosis of diabetes* is a target of 7.2 *new cases per 1,000 population* aged 18 to 84 years. During the three reporting periods, the rates of diabetes within the HD and the state have remained relatively constant, though the rate during 2009 was significantly lower than the state rate as well as for the prior year (14% lower within the health district.)

The rate for *diabetes related deaths* in the HD is significantly lower than that of the state, and both are about 20% above the 2020 HP goal of 65.8 per 100,000.

The rate for *hospitalization for diabetes* in the HD is significantly lower than that of the state.

Coronary Health

The HP 2020 target is to reduce coronary heart disease deaths to 100.8 deaths per 100,000 population. The baseline is 126.0 coronary heart disease deaths per 100,000 population occurred in 2007. This represents a 20% improvement. The HP 2020 target for reducing stroke deaths is 33.8 deaths per 100,000 population, based on 42.2 stroke deaths per 100,000 in 2007 (also a 20% improvement).

- The prevalence of high blood pressure increased from 2005-2007 though it was significantly lower than that for the state. The previous 2010 target was 16 percent, revised for 2020 to 26.9% and an improvement of 10% over the baseline of 29.9% 2005-2009.
- The prevalence of high cholesterol was almost three times the 2020 target (HD, 32.7%: target, 13.5%), though the percent was not significantly different from that of the state.
- The rate of deaths due to stroke in the HD was significantly higher than that of Nebraska. The 2020 target is 33.8 deaths per 100,000 population, based on 42.2 stroke deaths per 100,000 in 2007, a 20 percent improvement.
- Deaths due to coronary heart disease are not significantly higher in the HD compared those in the state.
- Hospitalizations for heart failure are significantly lower in the HD compared to those in the state.

Asthma

PHAN data includes several age groupings in a single category for 1-14 years. Asthma mortality rates are generally lowest for young children (under five years of age) and highest for adults aged 65 and older, so different 2010 objectives were established for five age groups. Pediatric asthma hospitalizations, the average annual death rate due to asthma, and the average annual death rate due to COPD were not significantly different for the HD compared to the state. Emergency room visits (1.1.9.u) were significantly lower for the HD compared to the state, while inpatient discharges were significantly lower.

Cancer/Death Rates

HP 2020 set a target of 70.5% for the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines. The baseline is 54.2% of adults aged 50 to 75 years. For cervical cancer screening, HP 2020 set a target of 93% (baseline: 84.5% of women aged 21 to 65).

- Participation in some cancer screenings has increased in recent years for the colonoscopy and PSA.
- The percent of women receiving mammograms decreased 2007-2008.
- Generally, the proportions of the HD who have *completed cancer screenings* (colonoscopy, mammograms) are significantly lower for the HD than for the state. The exceptions are the PSA in 2009 and the mammogram in 2005.
- For each type of screening, the percentages who participate for the HD are all considerably lower than participation targets of HP 2020 (70.5% mammogram, 93% Pap).

Maternal and Child Health

For Female adolescents aged 15 years and under, the HP 2020 target is that 91.2% will never have had sexual intercourse. The baseline, reported in 2006–08, was 82.9% (female adolescents aged 15 years had never had sexual intercourse). PHAN reports the percentage who have had sexual intercourse, and for NCDHD that (20.6%) is significantly lower than the proportion for the state (38.5%); however, it is also double the 2020 target of 9.8%.

Teenage births as a percent of total births is significantly lower for the HD when compared to the state.

Infant Mortality, Preterm Births, Birth Weight, Prenatal Care

In HP 2020, the baseline for infant death (in the first year of life) is 6.7 per 1,000 from 2006. The new target is 6.0 infant deaths per 1,000 live births. This is higher than the 2010 MCH objectives for both Nebraska and the United States, which was to reduce the infant mortality rate to no more than 4.5 infant deaths per 1,000 live births.

- The **Infant mortality rate** for the HD is 6.05, right on the HP 2020 target; further, the HD rate is that same as the state rate (5.75).
- The percent of mothers in the HD who receive **first trimester prenatal care** is 71.56%, which is comparable to the state rate but below the HP 2020 target of 77.9% (the 2010 Nebraska target was 90%).
- The percent of **low birth weights** (LBW) is 6.16%, which is comparable to the state rate of 7.07 and below the HP 202 target of 7.8%.
- Incidence of **preterm births** for the HD (8.21%) is comparable to the state rate (9.75%), and it is below the HP 2020 target of 11.4%.
- *Neural tube defects.* The rate for the HD (0.7/1,000 live births) is comparable to the state rate. *Both are higher than the target of .28 per 1,000.*
- For SIDS, the HD rate (1.13/1000) is more than two times the target (.5/1000).

Immunization and Infectious Diseases

The goals in from HP 2020 with respect to immunizations vary by age and level of risk. Participation in immunizations has increased for the HD during the periods of the report, but they are about *one third below the 2020 target.*

Nebraska reported progress toward its immunization and infectious disease objectives.

- Adult immunizations (ages 65+) for influenza (74%) are significantly lower within the HD when compared to the state.
- Hospitalizations for pneumonia and influenza are significantly higher when compared to the state.

Quality of Life Data

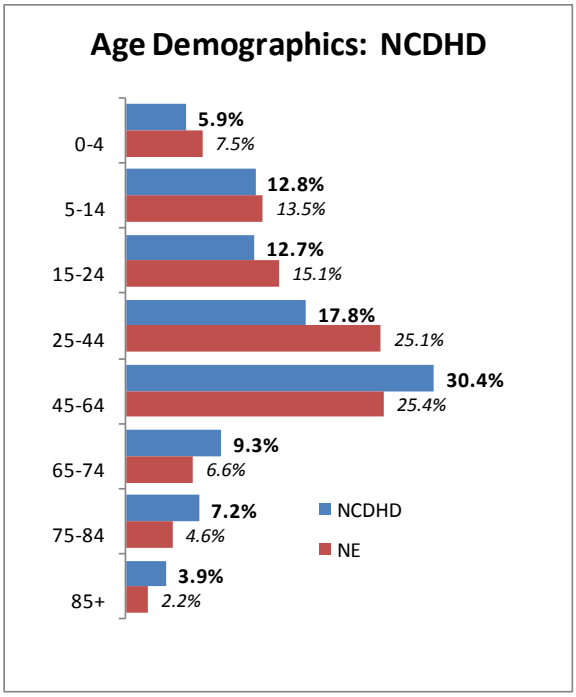
Environmental Issues receive some attention in the PHAN Data.

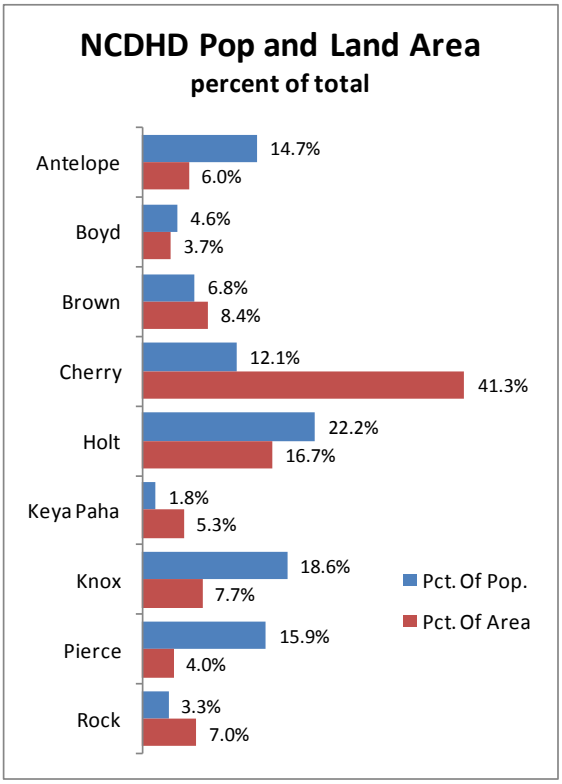
- The percent of NCDHD *adults who describe their general health as good to excellent* increased from 2008 to 2009, and was significantly higher than for the state.
- The percent of *children with elevated blood lead levels* (of those tested) is significantly higher than for the state.

- Because of the rural nature of the HD, there is very limited access to water that is fluoridated. The effect of lack of fluoridation might be suggested in (1.1.5.d.) the Percent of adults aged 65-74 years who have had all their permanent teeth extracted in 2008, which is significantly higher than the state percent.
- Also, the nitrate levels in water in NCDHD are significantly higher than for the state.
- The HD is significantly higher than the state in: occupational injuries/illnesses/farm injuries; unintentional injury deaths, motor vehicle deaths, and work-related accidental death rates.

INTRODUCTION

This document has been prepared for North Central District Health Department (NCDHD) as a preliminary step in its assessment process. It is based on 1) the PHAN (Public Health Agencies of Nebraska) report, a compilation of data from surveys and public health records; 2) Healthy People 2020 documents (especially *HP2020objectives.pdf*) which provide benchmarks and targets for priority health indicators; 3) the *Nebraska Behavioral Risk Factor Surveillance System Report: 2007-2008*; and 4) *The Nebraska Health Information Project: 2005 Data Book. (2005). Nebraska Center for Rural Health Research, University of Nebraska Medical Center.*





The PHAN report includes county level data, data for the public health district, and state level data across a series of indicators, presented as rates (per 1,000 for example) or ratios (a proportion or percentage/ per 100). Here rates for the state and Health District (HD) were compared using a formula that that determines whether a significant difference exists between the two crude rates, or whether the difference is by chance. When comparable HD/Nebraska rates are described as the "same," that should be read to mean that they are not statistically different. One advantage of the PHAN report is that it provides data for subsequent years for both the health department and the state (usually 2007, 2008, 2009)

This report is not the only source of comparative data. The Department of Health and Human Services, for example, publishes profiles/highlights for individual counties and for the health districts. DHHS also publishes reports that summarize and compare results from major data collection efforts, such as the Behavior Risk Factors Surveillance System, and within those reports DHHS indicates where there are significant differences between the Health District and the state.[1]

Note that there are differences between the PHAN data and the *Nebraska Behavioral Risk Factor Surveillance System Report: 2007-2008*. For example, the BRFSS report data show the *weighted percent* for obesity in the HD to be 26.4%, and for overweight to be 40.3%. PHAN for 2008 reports obesity for that year to be 28.4% and overweight to be 35.2%. The BRFSS result for healthy weight for the district reported is 33.3%,

[1] For this report some differences between data in the PHAN XLS file and BRFSS report. PHAN data are given priority here.

compared to 36.4% in PHAN. One advantage of the PHAN data is that it shows trends from year to year, presumably with comparable data.

DEMOGRAPHICS

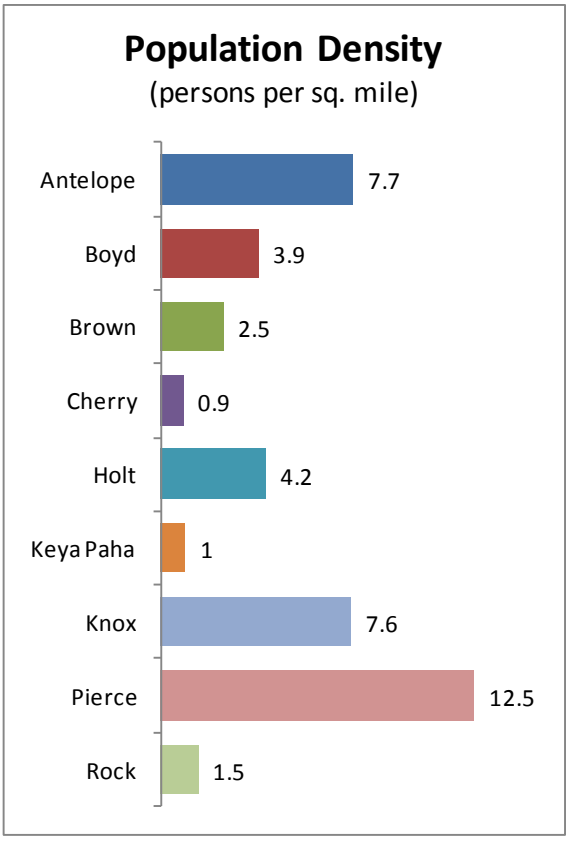
Demographics are akin to the physical and social factors that have an impact on health and quality of life. As access to health becomes limited, or lacking, the quality of health care similarly decreases. For example, when individuals do not have health insurance, they are less likely to participate in preventive care and they are more likely to delay medical treatment. Typical barriers are: lack of availability, high cost, lack of insurance coverage, and limited language access. The effects are unmet health needs; delays in receiving appropriate care; the inability to get preventive services; and hospitalizations that might have been prevented. Other effects normally associated with rural areas are a higher percent of injury related injuries, higher rates of heart disease, cancer and diabetes, and a lower rate of participation in preventing screening services.

The counties served by NCDHD are rural. Their land area comprises one-fifth (19%) of the land area of Nebraska, while their population is 2.5% of the state population. The population density is 3.1 people per square mile compared to the Nebraska rate of 23.5 people per square mile.

Age

Like much of rural Nebraska, the population is homogeneous (95% white /Caucasian; 5% minority); and it is declining, 11.4% in the last decade (total population was 51,084 in the 2000 Census; 45,135 estimated in 2009).

- Just under half (49%) of the health district (HD) population is under the age 45, compared to nearly two-thirds (61%) for Nebraska.
- Nearly one-third of the HD population is in the 45-64 age demographic, compared to 25% for Nebraska.
- One in five persons in the district is over the age 65 (NCDHD, 20%; NE, 13%).

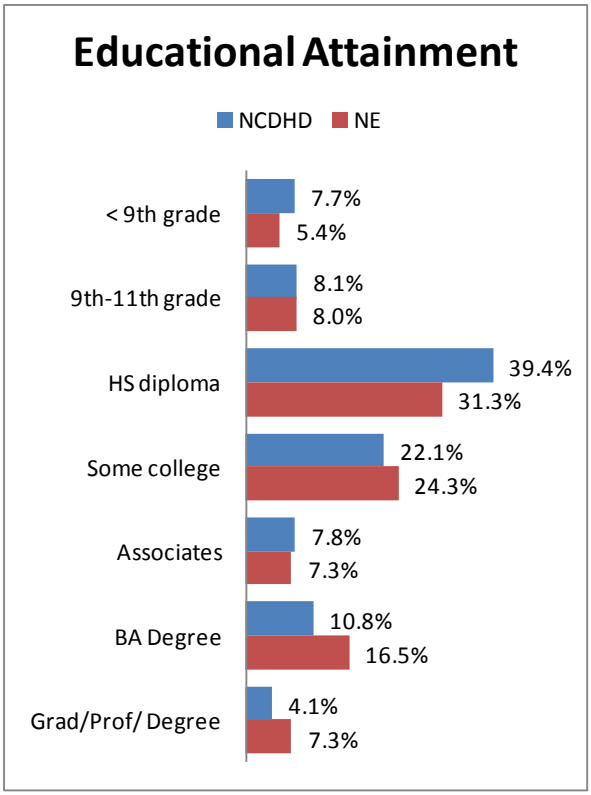


Overall, educational attainment for the HD is lower than for the state. In general, population groups that suffer the worst health status also are those that have the highest poverty rates and the least education. Inequalities in education (a proxy for income) are associated with differences in the occurrence of illness and death, including heart disease, diabetes, obesity, elevated blood lead level, and low birth weight. Over half (55%) of the HD population have a high school diploma or less, compared to 45% in the state. Conversely, one in six (15%) of the HD population have earned at least a 4-year or professional degree, compared to one fourth (24%) of the state's residents.

Other Demographics

- 35% of births in the nine counties during 2008 were covered by Medicaid.

- The HD per capita income ($28,482 in 2007) is 78% of that of the state. Household income ($37,938) is 76% of that of households throughout the state.
- The percent of population below 100% of poverty (2008) was 13.1%, higher than that of the state, 10.8%.
- Percent of children age 5-17 living below 100% of poverty (2008) 17.1%, a rate much higher than that of the state (11.7%).

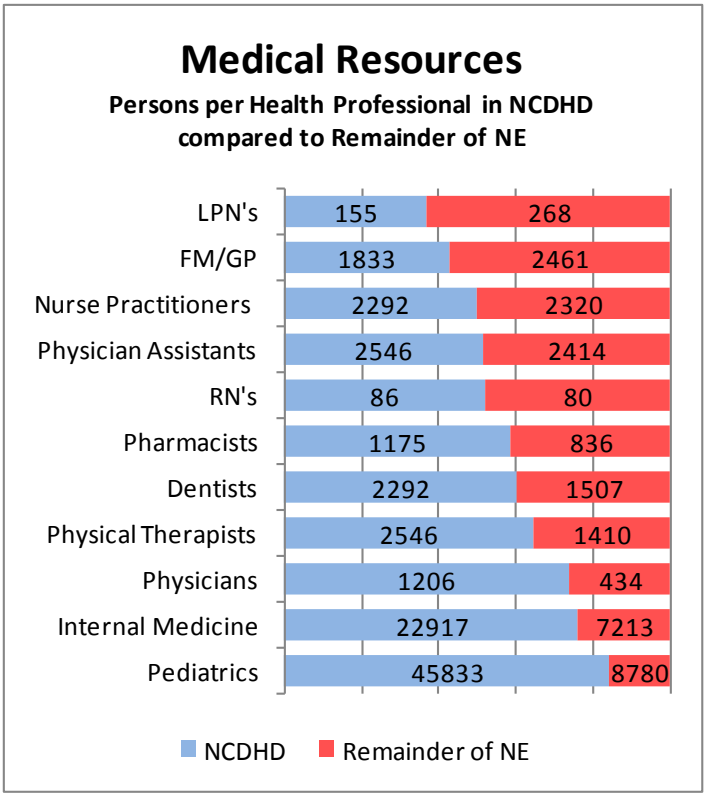


Access to health professionals

Many rural areas are considered underserved and need to develop medical systems capacity. For example, many areas have a shortage of physicians, nurses, mental health professionals, as well as many other types of health personnel. Within the plans developed by public health are initiatives to assist rural communities in the recruitment and retention of health care professionals and in documenting health system deficiencies. Public health can also focus on the causes of farm accidents and injuries and design preventive programs to reduce them.

Of the professional areas on the PHAN worksheet, two are designated as shortage areas: Obstetrics/Gynecology, Psychiatrics or mental health. Because no practitioners were listed, these categories are excluded from the chart below.

Medical Resources. The chart shows the number of residents per health professional across the various categories. The figures on the Medical Resources chart are calculated from PHAN data so that the professionals from the NCDHD are not included in the numbers for the 'remainder' of Nebraska. In NCDHD, there are 1,206 persons per physician; in the remainder of Nebraska, there are 434 persons per physician, and 441 in Nebraska as a whole.



In addition to the obvious shortages in obstetrics/gynecology and psychiatrics, the district shows shortages in professionals in pediatrics, internal medicine, physicians, pharmacy, and dentistry. Only one pediatrician has offices in the district.

ACCESS

Access to quality care is considered the key element in reducing health disparities and increasing the quality and years of healthy life. Indicators used to describe access include health care coverage, access to services with regard to cost, a regular primary care provider, a source of ongoing health care, and the use of clinical preventive services, such as early prenatal care.

Persons with health insurance, for example, are more likely to have a primary care provider and to have received appropriate preventive care such as a recent PAP test, immunization, or early prenatal care. Historically, adults with health insurance are twice as likely to receive a routine checkup as are adults without health insurance.

A key factor in access is the number of medical practitioners who serve an area. As might be expected, the population/practitioner ratio is higher than for Nebraska. A closer look at the number of counties with shortages within the professional areas: family practice (7 counties have shortages); general surgery (6); internal medicine (7); pediatrics (8); obstetrics/gynecology (9); psychiatrics (9); dental (4); pharmacy (5); occupational therapy (5); physical therapy (3). The number of primary care physicians serving the area has stayed the same since 2005 (37); the number of dentists has decreased from 21 in 2005 to20 in 2010; pharmacists increased from 35 (2005) to 39 (2010); and the numbers of RNs and LPNs has remained about the same.

- **Health Insurance.** The Healthy People (HP) goal for health insurance is 100%. In Nebraska 84.1% of those ages 18-64 have health insurance compared to 80.2% for the NCDHD (2009). The percent *without insurance* increased about 1% for both the state and the HD from 2007-2009.
- Since the PHAN report shows the percent who do not have health insurance, additional columns have been added to Table 1 to reflect the proportion who do have insurance, a figure based on the adult population ages 18-64. In real numbers, PHAN reports that of 25,571 in that age range (18-64), 5,063 do not have insurance coverage (Lines 1.1.5.p-q.*).*
- The *most recent goal* for having a *personal health care provider* for Nebraska is 98%. The current percent for the HD is 86.2%, higher than the current percent for the state (84.5%) but below the Nebraska Goal. The new Healthy People 2020 target is 83.9%, based on 10% improvement of the 76.3% who had a usual primary care provider in 2007. (The HD and state exceed the new target.)
- The differences between the HD and NE are significant in all but one row of Table 1 (Unable to see a doctor due to cost - 2007). In terms health care coverage, the most recent data indicate that fewer of the HD population have health care coverage, and that this proportion without coverage has increased overall from 2007 to 2009.
- On the other hand, while the proportion of the HD population with a personal health care provider increased in 2009 (from 80 to 86%), the proportion who visited a doctor in the past 12 months has steadily decreased since 2007 from 59% to 54%.
- The *2007-2008 BRFSS* report for Nebraska adds two other areas of significant difference. Males in the HD are less likely to have a personal doctor/health care provider (those who did not have: male, 25%; female, 12%). About half (47%) of males reported visiting a doctor for a routine checkup in the past year compared to 70% of females.

Table 1. Access (Insurance, Provider, Visited Doctor)

1.1.3. Health Resource Availability Data	NCDHD	NE	μ*	NCDHD	NE	2020 Target
1.1.5.p. Population age 18-64 (2009)	**25571**	**1100457**				
1.1.5.q. Number age 18-64 with no health insurance-2009	**5063**	**174973**		**Percent who do have,...**		
1.1.3.a. No health care coverage - 2007 - Ages 18-64	18.6	15	14.864	81.4	85	100%
No health care coverage - 2008 - Ages 18-64	20.4	15	22.296	79.6	85	100%
No health care coverage - 2009 - Ages 18-64	**19.8**	**15.9**	15.640	**80.2**	**84.1**	**100%**
Minority (N = 2329) Percent with no health insurance - 2008 [2]	43	31.9	9.484389			
Percent with no health insurance - 2009	21.7	31.5	-8.4266			
1.1.3.b. No personal health care provider - 2007	18.3	16.4	7.502	81.7	83.6	
No personal health care provider - 2008	19.9	14.9	20.713	80.1	85.1	98%
No personal health care provider - 2009	13.8	15.5	-6.905	86.2	84.5	83.9%
1.1.3.c. Unable to see a doctor due to cost - 2007	9.9	10	-0.506	90.1	90	
Unable to see a doctor due to cost - 2008	9.5	10.9	-6.781	90.5	89.1	
Unable to see a doctor due to cost - 2009	10.7	11.5	-3.772	89.3	88.5	
Minority (N = 2329)						
Couldn't afford to see MD - 2008	8.3	20.1	-12.7019			
Couldn't afford to see MD - 2009	6.4	23.4	-16.9599			
Visited doctor in last 12 months - 2007	59.4	62	-5.280			
Visited doctor in last 12 months - 2008	57.6	60.2	-5.359			
Visited doctor in last 12 months - 2009	53.9	58.8	-10.218			

**This column contains the parameter from an analysis comparing Crude Rates or Ratios, indicating significance. If the value of μ is greater than ±1.96, the local rate differs at the 95% Confidence Interval (CI); if greater than ±2.33, is at the 98% CI; If at ±2.58, it is at the 99% CI.*

PHYSICAL ACTIVITY

Regular physical activity is a leading health indicator because it is associated with lower death rates for adults of any age, even for moderate levels of activity. Among the benefits are that it decreases the risk of death from heart disease, lowers the risk of developing diabetes, helps prevent high blood pressure, helps reduce blood pressure in persons with elevated levels, and aids in weight control. Data from national studies suggest the prevalence of lower amounts of activity for: women vs. men, lower income and educational levels vs. higher, and particularly among older adults ("By age 75, one in three men and one in two women engage in *no* regular physical activity.").

[2] Note that for minority with health coverage and minority exercise (Table 2), the percentages shift radically from 2008 to 2009.

- For the HD, recent PHAN responses show significantly lower levels of activity compared to the state; during 2009 about one in four adults (29%) engaged in no *leisure time* physical activity. However, data suggest an increase in **regular sustained physical activity** from 2005 to 2009 (34.3% to 51%). Participation in **regular vigorous activity** also increased.

Table 2. Physical Activity in percent

	NCDHD	NE	μ	NE Goal
Percent with no leisure-time physical activity - 2007	26.1	21.6	18.0585	15%
Percent with no leisure-time physical activity - 2008	30.7	24.3	24.21435	15%
Percent with no leisure-time physical activity - 2009	28.9	23.7	19.92164	
Minority (N = 2329)				
1.1.5.aa. No leisure activity - 2008	56.9	33	20.07809	
1.1.5.aa. No leisure activity - 2009	24.5	37	-9.9172	
Participation in regular sustained physical activity - 2005	34.3	37.6	-10.0373	30
Participation in regular sustained physical activity - 2007	49.2	53	-9.73513	30
Participation in regular sustained physical activity - 2009	51	51.7	-1.81572	30
Participation in regular vigorous physical activity - 2005	22.5	27.6	-18.1055	30
Participation in regular vigorous physical activity - 2007	25.5	31.8	-20.8364	30
Participation in regular vigorous physical activity - 2009	28.7	30.7	-6.7322	30

WEIGHT

Overweight and obesity are associated with higher death rates, and the number of overweight children, adolescents, and adults has risen over the past four decades. Health publications cite a litany of related risks.

Being overweight or obese substantially raises the risk of illness from: heart disease and stroke; high blood pressure; elevated blood cholesterol levels; type 2 diabetes; endometrial, breast, prostate, and colon cancers; gallbladder disease; arthritis; sleep disturbances; and breathing problems. Obese persons (both children and adults) may also suffer from social stigmatization, discrimination, and lowered self-esteem. (NEBRASKA 2010 Health Goals And Objectives: A Midcourse Review, p. 160)

PHAN data document the prevalence for overweight and obesity. *The first row of the table below includes the inverse*, the percentage of those with healthy weight and the corresponding goals. Overall, two-thirds of Nebraskans are not a healthy weight.

- One-third of adults (36.2%) in Nebraska are at a healthy weight; the percentage for the HD (36.4% for 2009) is comparable to the state rate, while the US rate is 30.8% (2005-2008).
- For NCDHD, the prevalence of overweight decreased from 2007-2009. In 2009 the proportion of overweight for the HD was significantly higher than for NE.
- Though the percentage for obesity for the HD is significantly lower than the reported NE percent, that percent increased significantly for the HD from 2007-2009 (against a baseline of 2007).

Note that there are differences between the PHAN data and the *Nebraska Behavioral Risk Factor Surveillance System Report: 2007-2008.* Those data show the weighted percent for obesity in the HD to be 26.4%, and for overweight to be 40.3%. The percent at healthy weight would be 33.3% for the district. One advantage of the PHAN data is that it shows trends from year to year, presumably with comparable data.

With respect to the Healthy People targets, the percent of obese and healthy weight may present considerable opportunities for improvement, depending on the goal and year selected. The HP 2020 goals are very different for those set for 2010. The 2010 goal, for example, was to reduce the prevalence of obesity to 15%, while the 2020 goal is 30.6% from a US baseline of 34% (both the US baseline and the target are higher than the current Nebraska proportion). The previous healthy weight target was 60%; now it is 33.9%.

Table 3. Risk Factors, Weight

1.1.5. Behavioral Risk Factors-Weight				
Adults	**NCDHD**	**NE**	**μ***	**HP Goals 2020**
Adults at a Healthy Weight (calculated from PHAN)	36.4	36.2	0.620	33.9%
1.1.5.a. Prevalence of overweight - 2007	44.7	37.8	20.931	
Prevalence of overweight - 2008	35.2	35.6	-1.250	
Prevalence of overweight - 2009	38.0	35.9	6.537	
1.1.5.b. Prevalence of obesity - 2007	24.4	26.1	-6.206	30.6%
Prevalence of obesity - 2008	28.4	27.7	2.481	
Prevalence of obesity – 2009	25.6	27.9	-8.121	
Minority (N = 2329)				
1.1.5.z. Obesity - 2008	29.6	37.3	-6.08438	
1.1.5.z. Obesity - 2009	44.5	32.7	9.958401	

DIET AND NUTRITION

The *Dietary Guidelines for Americans* include recommendations that Americans eat a variety of whole grains, fruits, and vegetables daily. Healthy People narratives observe that persons of all ages eat fewer than the recommended number of servings in each of these categories. PHAN data are limited, combining consumption of fruits and vegetables (which were treated separately in Healthy People goals).[3]

- These indicators show no improvement from 2007-2009 for the HD, though there is a decline for the state for the same time period. The HD proportion, then, for 2009 is significantly better than that of the state. The proportion is still a long way from the Healthy People goals, which are 75% for fruits and 50% for vegetables. Nebraska does not have a published goal for nutrition.

[3] Recommendations appear on p. 237 of HP2020objectives.pdf, expressed in terms of cups per 1,000 calories.

Table 4. Diet and Nutrition

1.1.5.k. I take steps in my daily life to achieve or maintain a stable and healthy weight.	NCDHD	NE	μ*	ADA Guidelines*
I eat five or more fruits and vegetables every day - 2005.	21.1	21.5	-1.60893	
I eat five or more fruits and vegetables every day - 2007.	23.5	24	-1.90353	
I eat five or more fruits and vegetables every day - 2009.	23.2	20.9	9.383194	50% for veg. 75% for fruit

**The 2000 Dietary Guidelines for Americans recommended five or more servings of fruits and vegetables per day for good nutrition. (These guidelines serve as the basis for BRFSS questions or fruits and vegetables). The 2005 Dietary Guidelines encourage a healthy balance of nutritious foods, including 7 to 10 servings of fruits and vegetables each day or about 4 ½ cups of these foods daily for the average adult.*

TOBACCO

> "Cigarette smoking is the single most preventable cause of disease and death in the United States. Smoking results in more deaths each year in the United States than AIDS, alcohol, cocaine, heroin, homicide, suicide, motor vehicle crashes, and fires—combined."

The Nebraska Healthy People narrative adds that there is no safe alternative to tobacco, including chewing tobacco and cigar smoking. The narrative expressed the concern that an estimated 3,000 youth start smoking each day, and that most adult smokers tried their first cigarette before age 18.

Overall, rates have been constant or have shown some decline; however, in Nebraska, rates for chew tobacco tend to be higher than those nationally, and this is reflected in this HD.

- The use of smokeless tobacco use is significantly greater in the HD compared with Nebraska. It is nearly eight times the Nebraska/US goal. In the Nebraska Behavioral Risk Factor Surveillance System Report 2007-2008, the HD has the highest rate of males 18+ who currently use smokeless tobacco (p. 400). Smokeless tobacco is cited as the single most important risk factor for cancers of the lip, mouth, tongue and throat. Note that the 2007-2009 BRFSS Report indicated that 30% of males currently use smokeless tobacco (2008). This is probably consistent with the PHAN report, which is 18% of all, both male and female, for the comparable period.
- Smoking prevalence and the use of smokeless tobacco decreased through for the state and for NCDHD.
- Smoking prevalence in the HD is significantly lower than that of the state. *Overall, smoking prevalence is about 31% above the goal.*
- The HD-State proportions for youth (18.5%) are the same (no individual data are available). Also, the precise behavior is not defined (i.e., smoking ever, past 12 months, 30 days?).
- Tobacco related deaths in the HD (105.3 per 100,000) and related hospitalizations (243.5/100,000) are not significantly different from the state rate.

Table 5. Tobacco Usage

1.1.5.j. Smoking prevalence -	NCDHD	NE	μ*	HP Goals 2020
Smoking prevalence - 2007	18.6	20.2	-6.640	12
Smoking prevalence - 2008	17.2	18.6	-6.054	12
Smoking prevalence - 2009	15.8	16.9	-4.991	12
1.1.5.l. Prevalence of cigarette smoking - high school (2009)	18.5	18.5		
Minority (N = 2329)				
1.1.5.bb. Percent currently smoking cigarettes - 2008	41.5	22.3	19.62151	
1.1.5.bb. Percent currently smoking cigarettes - 2009	44.9	23.2	21.74199	
SMOKELESS TOBACCO				
1.1.5.k.Prevalence of male smokeless tobacco use- 2008	17.5	9	37.366	
1.1.5.k.Prevalence of male smokeless tobacco use- 2009	14.7	9.1	24.482	0.3%*
HD Decrease from 08 to 09			-8.827	
1.1.7.b Tobacco related deaths (rate/100,000), 2005-2009	105.3	113.3	-0.05461	
1.1.7.c. Hospitalization for tobacco related disease (rate/100,000), 2007-2008	243.5	255.5	-0.50436	

**Adult usage, based on a 2% improvement over the national figure, 2.3%.*

SUBSTANCE ABUSE

While Tobacco Use is a leading cause of death, alcohol and drug use are associated with many other problems, including violence, injury, and HIV infection.

Nebraska reports progress in Substance Abuse objectives, all related to adolescent behaviors. The proportions of high-school students reporting drinking and driving, riding with a driver who had been drinking, and binge drinking were all down, while the proportion of high-school seniors who never drank alcoholic beverages were reported higher. The proportion of adolescents in grades 9 through 12 who used marijuana in the past 30 days was also up somewhat.

One of Nebraska's 2010 objectives in the Substance Abuse focus area was to reduce alcohol-related *motor vehicle fatalities* to no more than 4.0 deaths per 100,000. The 2010 U.S. objective was a little higher, at 4.8 per 100,000. The 2020 objective is to reduce the number of deaths by 10% from 79,646 to 71,681. *A comparable goal for Nebraska in the data presented below would be to reduce the number of alcohol related deaths from 29.4/100,000 to 26.5/100,000.*

- PHAN data for chronic heavy drinking show significant differences by gender within the HD and within the state. Within the HD, the proportion of male chronic heavy drinkers has increased during the three years from 2007-2009; it has also increased for the females within the HD.
- Chronic heavy drinking for combined genders is not *significantly different* from the state in 2009. It is significantly higher for males within the HD when compared to males across the state for all three reporting periods. The rate for HD females is lower in 2007 and 2008, but not different in 2009.

- Youth drinking data are not disaggregated for the HD. The prevalence of binge drinking among youth is nearly three times the Healthy People 2020 Goal (prevalence, 20%: goal, 8.5%). Arrest data for youth indicate that arrests for DUI are the same for the HD as for the as for the state, and that arrests for drug violations are significantly lower for the HD.
- The rate for alcohol related deaths in the HD is not significantly different from the rate for the state; and the rate for hospitalization for alcohol related disease is significantly lower than that of the state.

Table 6. Drinking and alcohol related deaths/hospitalizations.

	NCDHD	NE	μ*
1.1.5.o. Chronic heavy drinking - 2007	4.8	4.5	3.004497
Male - 2007	6.1	5.4	4.49802
Female - 2007	2.1	3.6	-11.94
Chronic heavy drinking - 2008	5	4.7	2.939876
Male - 2008	7.3	5.1	14.54648
Female - 2008	2.6	4.4	-12.9601
Chronic heavy drinking - 2009	4.9	5.1	-1.88149
Male - 2009	7.4	6.6	4.649842
Female - 2009	3.5	3.6	-0.796
1.1.7.d. Alcohol related deaths (rate/100,000), 2005-2009	30.6	29.4	0.016081
1.1.7.e. Hospitalized for alcohol related disease (rate/100,000), 2007-2008	309.1	434.8	-4.04993

Table 7. Youth: YRBS and Public Data.

Youth: Public Data Sources	NCDHD	NE	μ*	
Juvenile arrests for DUI (rate/1,000) - 2007	1	0.6	1.661325	
Juvenile arrests for DUI (rate/1,000) - 2008	0.6	0.6	0	
Juvenile arrests for DUI (rate/1,000) - 2009	0.6	0.5	0.454973	
Juvenile arrests for drug law violations (rate/1,000) - 2007	1.2	2.6	-2.79326	
Juvenile arrests for drug law violations (rate/1,000) - 2008	0.9	2.6	-3.39182	
Juvenile arrests for drug law violations (rate/1,000) - 2009	0.5	2.5	-4.0694	

Table 7. Youth Drinking continued.

Youth (YRBS 2009)				HP Goals 2020
1.1.5.s. Adolescent alcohol drinking in the past thirty	31.3	31.3		
1.1.5.t. Adolescent binge drinking in the past 30 days	20	20		8.5%
1.1.5.u. Adolescent riding with drinking driver in past 30 days	27.2	27.2		25.5%
1.1.5.v. Adolescent ever used marijuana	26.3	26.3		
1.1.5.w. Adolescent currently use marijuana	11.8	11.8		6%
1.1.5.x. Adolescent ever used cocaine	5.6	5.6		
1.1.5.y. Adolescent ever used inhalants	11.5	11.5		

SOCIAL AND MENTAL HEALTH

For Nebraska the 2010 target was to reduce the deaths due to suicide to no more than 4.8 deaths per 100,000 population. According to PHAN data, the HD rate of suicide is the statistically the same as that of the state, while the rate for inpatient hospitalization for self-inflicted injury is significantly lower than that of the state. The HP 2020 Goal is 10.2, based on a 10% improvement of the 2007 baseline of 11.3/100,000.

Table 8. Social and Mental Health

1.1.7. Social and Mental Health	NCDHD	NE	μ	2020 Goal
1.1.7.a. Suicide mortality--deaths/100,000 (2005-2009)	6.9	10.5	-0.74639	10.2
Self-inflicted injury hospitalization--outpatient (2007-2008)	29.3	74	-3.49099	
Self-inflicted injury hospitalization--inpatient (2007-2008)	22.3	58.9	-3.20391	

DIABETES

The 2020 Goal for diagnosis of diabetes is a target of 7.2 **new cases per 1,000 population** aged 18 to 84 years. During the three reporting periods, the rates of diabetes within the HD and the state have remained relatively constant, though the rate during 2009 was significantly lower than the state rate as well as for the prior year (14% lower within the health district.)

The rate for **diabetes related deaths** in the HD is significantly lower than that of the state, and both are about 20% above the 2020 HP goal of 65.8 per 100,000.

The rate for hospitalization for diabetes in the HD is significantly lower than that of the state.

Table 9. Prevalence of Diabetes.

1.1.9.l. Incidence of diabetes	NCDHD	NE	μ	Goal
1.1.9.l. Prevalence (number of existing cases) of diabetes, 2009	2504.52	97899.5		
Population of adults aged 18+ (2009)	34785	1341089		
Prevalence of diabetes among adults (%) - 2007	7	6.7	2.161623	
Prevalence of diabetes among adults (%) - 2008	7.2	7.3	-0.69029	
Prevalence of diabetes among adults (%) - 2009	6.2	7	-5.63945	
1.1.9.m Diabetes related deaths (2005-2009)	78.6	81.2	-5.38135	65.8/100k
1.1.9.n. Hospitalization for uncontrolled diabetes (patients), 2007-2008	13.3	24.8	-43.0693	

CORONARY HEALTH

Cardiovascular Disease (CVD) includes a wide variety of heart and blood vessel diseases, of which coronary heart disease and stroke are the principal components. The American Heart Association estimates that 71.3 million Americans currently have one or more types of CVD. An estimated 13.2 million persons have coronary heart disease and 5.5 million have had a stroke. The national Healthy People 2010 goals for Heart Disease and Stroke are aimed at improvements in cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and the prevention of recurrent cardiovascular events.

Nebraska

In Nebraska the target of deaths due to coronary heart disease was revised from 121.5 to 84 per 100,000, in part because the rate had decreased considerably and was below the target set for 2010. Progress was made toward the 2010 targets for 1) the overall mortality rate for stroke declined substantially and nearly reached the 2010 target rate; and 2) in increasing the proportion of adults who had their blood cholesterol level checked in the past five years.

Similarly, the *HP 2020* target is to reduce coronary heart disease deaths to 100.8 deaths per 100,000 population. The baseline is 126.0 coronary heart disease deaths per 100,000 population occurred in 2007. This represents a 20% improvement. The HP 2020 target for reducing stroke deaths is 33.8 deaths per 100,000 population, based on 42.2 stroke deaths per 100,000 in 2007 (also a 20% improvement).

- Deaths due to coronary heart disease are not significantly higher in the HD compared those in the state.
- Hospitalizations for heart failure are significantly lower in the HD compared to those in the state. Targets are different for each aged group 65+: for 65-74, 8.8; for 75-84, 20.2 per 1,000; and for 85+, 38.6 per 1,000.
- The prevalence of high blood pressure increased from 2005-2007, though it was significantly lower than that for the state. The previous 2010 target was 16 percent, revised to 26.9% and an improvement of 10% over the baseline of 29.9% from 2005-2009.
- The prevalence of high cholesterol was almost three times the 2020 target (32.7%:13.5%), though the percent was not significantly different from that of the state.

- The rate of deaths due to stroke in the HD was significantly higher than that of Nebraska. The 2020 target is 33.8 deaths per 100,000 population, based on 42.2 stroke deaths per 100,000 in 2007, a 20 percent improvement.

Table 10. Coronary Health

Coronary Health	NCDHD	NE	μ	
1.1.9.o. Deaths due to coronary heart disease (2005-2009)	112.6	91.7	1.466285	100.8
1.1.9.p. Hospitalizations for congestive heart failure (patients), 2007-2008	49	73.1	-5.98846	
1.1.9.q. Hypertension prevalence & screening percent of adults w/high blood pressure; percent who had BP check in past 2 years				
Prevalence of high blood pressure - adults (2005)	22	26.8	-17.293	
Prevalence of high blood pressure - adults (2007)	22.5	25.4	-10.7319	
Prevalence of high blood pressure - adults (2009)	23.5	25.5	-7.38679	26.9%
1.1.9.r. Hypercholesterolemia prevalence & screening percent of adults with high blood cholesterol; percent of adults who had blood cholesterol checked				
Percent of adults aged 18+ with high blood cholesterol level (2007)	25.5	31.9	-21.1339	
Percent of adults aged 18+ with high blood cholesterol level (2009)	32.7	32.2	1.643379	13.5%
1.1.9.s. Deaths due to stroke (2005-2009)	47.6	42.9	13.38335	33.8
Do you currently have or have you ever had any of the following? Have coronary heart disease (2008)	3.7	3.9	-1.88883	
Have coronary heart disease (2009)	4.6	3.5	10.96616	

ASTHMA

Chronic respiratory diseases include asthma and chronic obstructive pulmonary disease (chronic bronchitis and emphysema). According to the HP narrative, most of the problems caused by asthma could be averted if persons with asthma and their health care providers managed the disease according to established guidelines.

PHAN data includes several age groupings in a single category for 1-14 years. Asthma mortality rates are generally lowest for young children (under five years of age) and highest for adults aged 65 and older, so different 2010 objectives were established for five age groups.

- Pediatric asthma hospitalizations were not significantly different for the HD compared to the state.
- Emergency room visits (1.1.9.u) *were significantly lower* for the HD compared to the state, while inpatient discharges were significantly lower than the state.
- The average annual death rate due to asthma for the HD was not significantly different from that of the state.
- The average annual death rate due to COPD for the HD was not significantly different from that of the state.

Table 11. Asthma

	NCDHD	Nebraska	μ	Goal*
1.1.9.t. Pediatric asthma hospitalizations (aged 1-14), 2007-2008 (patients)	6	575		
Population aged 1-14 (2008)	7339	344527		
Pediatric asthma hospitalizations (rate/1,000), 2007-2008	0.408775	0.834477	-0.39922	
1.1.9.u. Emergency room visits for asthma (patients), 2007-2008	8	755		
1.1.9.v. Asthma inpatient hospital discharges (patients),2007-2008	26.7	49.7	-6.93117	
1.1.9.w. Average annual death rates due to asthma (rate/100,000), 2005-2009	1.3	1.5	-0.10971	
1.1.9.x. Deaths due to chronic obstructive pulmonary disease (aka chronic lower respiratory disease), 2005-2009	37.5	47.8	-1.00088	98.5per 100k
1.1.9.z. Do you currently have or have you ever had any of the following? Allergies, arthritis or rheumatism, asthma, cancer, chronic back/neck pain, chronic bronchitis or emphysema, chronic pain, coronary heart disease or angina or congestive heart failure?				
Ever told you have arthritis (2007)	25.8	26.8	-3.6027	
Ever told you have arthritis (2009)	28.2	24.3	14.75562	
Ever told you have asthma (lifetime), 2008	8.5	10.5	-11.5115	
Ever told you have asthma (lifetime), 2009	6.8	11.7	-26.7177	
1.1.9.y. Chronic lung disease deaths, 2005-2009	37.5	47.8	-0.87866	

*Note: HP targets are specific for age groupings: under 35; 35-64; 65+.

CANCER/DEATH RATES

Cancer as a health issue cuts across several topics here. Cancer is second only to heart disease as a leading cause of death in the United States and in Nebraska. According to an estimate from the American Cancer Society, nearly 1.4 million Americans were diagnosed with cancer and 564,830 persons died from cancer in 2006. In Nebraska, it is estimated that 8,450 people will receive a diagnosis of cancer and 3,410 Nebraskans die as a result of this disease.

HP 2020 set a target of 70.5% for the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines. The baseline is 54.2% of adults aged 50 to 75 years. For cervical cancer screening, HP 2020 set a target of 93% that increases the proportion of women who receive a cervical cancer screening (baseline: 84.5% of women aged 21 to 65).

- Participation in some cancer screenings has increased in recent years, notably for the colonoscopy and PSA. The percent of women receiving mammograms decreased 2007-2008.
- *Screenings*. Generally, the proportions of the HD who have completed cancer screenings (colonoscopy, mammograms) are significantly lower for the HD than for the state. The exceptions are the PSA in 2009 and the mammogram in 2005.
- *Screenings and 2020 Goals.* All are considerably lower than participation targets of HP 2020 (70.5% mammogram, 93% Pap).
- *Death & Incidence rates.* There are no significant differences between the HD and the state.

Table 12. Cancer Screening Rates

	NCDHD	NE	μ	Goals
1.1.5.nn. Had colonoscopy < 10 years ago (50+)(2007)	41.6	49.3	-15.3197	
1.1.5.nn. Had colonoscopy < 10 years ago (50+)(2008)	44.2	55	-20.3435	
1.1.5.nn. Had colonoscopy < 10 years ago (50+)(2009)	45.4	50.1	-9.27602	70.5%
Had PSA test < 2 years ago (males 50+)(2008)	62.5	67.5	-5.97908	
Had PSA test < 2 years ago (males 50+)(2009)	63.6	62.4	1.492474	
Had DRE < 2 years ago (males 50+)(2008)	**49.1**	**56.6**	**-9.79427**	
Had DRE < 2 years ago (males 50+)(2009)	47.8	51.5	-5.06545	
1.1.8.n. Mammogram screening in past year (women age 40+) - 2007	**55.1**	**55.3**	**-0.30202**	
Mammogram screening in past year (women age 40+) - 2008	52.8	54.5	-2.58597	
Clinical breast exam (CBE) in last 12 months (women 40+) - 2007	61.3	67.2	-8.08234	
Clinical breast exam (CBE) in last 12 months (women 40+) - 2008	55.8	63	-10.1867	70.5%
1.1.8.dd. Had PAP test in the last three years - 2007	**75.4**	**78.9**	**-3.74236**	**93%**
1.1.8.dd. Had PAP test in the last three years - 2008	75.3	77.9	-2.79783	

Table 13. Cancer Death Rates

1.1.9. Death, Illness and/or Injury Data	NCDHD	NE	μ	2020 Goals
1.1.9.a. Incidence of cancer (2003-2007)	454.1	478.7	-0.75537	
1.1.9.b. Deaths due to cancer - rate/100,000 (2005-2009)	164.6	174	-0.47875	160.6
1.1.9.c. Cancer mortality rates x R/E (2005-2009)				
Caucasian	165.1	173.4	-0.42346	
Black	0	233.7	-10.2704	
Native American	175.6	168.8	0.351625	
Asian	134.2	95.5	2.660517	
Hispanic	0	101.8	-6.77845	
1.1.9.d. Incidence of LUNG cancer (2003-2007)	54.9	65.6	-0.88754	
Deaths due to LUNG cancer (2005-2009)	45.9	47.1	-0.11747	45.5
1.1.9.e. Incidence of BREAST cancer (2003-2007)	118.5	123.2	-0.28448	
Deaths due to BREAST cancer (2005-2009)	15.5	21.2	-0.83169	20.6
1.1.9.f. Incidence of CERVICAL cancer (2003-2007)	2.4	7.2	-1.2018	7.1
Deaths due to CERVICAL cancer (2005-2009)	3	1.6	0.743575	2.2
1.1.9.g. Incidence of COLORECTAL cancer (2003-2007)	55.9	56.2	-0.02688	45.4
Deaths due to COLORECTAL cancer (2005-2009)	20.6	18.2	0.377948	14.5

Table 13 Continued.

1.1.9. Death, Illness and/or Injury Data	NCDHD	NE	μ	2020 Goals
1.1.9.h. Incidence of PROSTATE cancer (2003-2007)	194.6	158.9	1.902668	
Deaths due to PROSTATE cancer (2005-2009)	25.7	24.7	0.135179	21.2
1.1.9.i. Incidence of MELANOMA (2003-2007)	12.7	17.1	-0.71484	
Deaths due to MELANOMA (2005-2009)	1.4	3.1	-0.64867	2.4
1.1.9.j. Incidence of LYMPHOMA (2003-2007)	15.9	20.4	-0.66935	
Deaths due to LYMPHOMA (2005-2009)	6.1	7.5	-0.34344	
1.1.9.k. Incidence of LEUKEMIA (2003-2007)	16.3	13.8	0.452124	
Deaths due to LEUKEMIA (2005-2009)	4.7	7.1	-0.60512	

MATERNAL AND CHILD HEALTH

The health of mothers, infants, and children is seen 1) as a reflection of the current health status of a large segment of the U.S. population and 2) as a predictor of the health of the next generation. Topics included under Maternal and Child Health include a range of indicators of maternal, infant, and child health—those primarily affecting pregnant and postpartum women (including indicators of maternal illness and death) and those that affect infants' health and survival (including infant mortality rates; birth outcomes; prevention of birth defects; access to preventive care; and fetal, perinatal, and other infant deaths).

Infant mortality is an indicator of health status and social well-being. HP documents report that critical measures of increased risk of infant death, such as new cases of low birth weight (LBW) and very low birth weight (VLBW) actually have increased in the United States. In addition, the disparity in infant mortality rates between whites and specific racial and ethnic groups persists.

Nebraska

Progress was made in Nebraska for 11 of the 18 MCH objectives (detailed in NEBRASKA 2010 HEALTH GOALS AND OBJECTIVES: A MidCourse Review, 2007, p. 136). Declines were noted in the infant mortality rate and the neonatal mortality rate, as were death rates for children, adolescents, and young adults in 4 age groups (aged *5* to 24 years).

Several categories "moved away" from the Nebraska HP target: the death rate for children aged one to four years increased; slightly fewer women began receiving prenatal care in the first trimester of pregnancy or received "early and adequate" prenatal care; the rate of low weight births increased slightly as did the incidence of spinal bifida compared to the 1999 rate. Also, no improvement was seen in the proportion of very low weight births in Nebraska, nor in the post neonatal death rate (for babies between the ages of 28 days and one year). The report also notes that though progress was observed in several of Nebraska's MCH objectives, racial and ethnic disparities may still exist in many of these measures.

Teenage Births

For Female adolescents aged 15 years and under, the HP 2020 target is that 91.2% will never have had sexual intercourse. The baseline, reported in 2006–08, was 82.9% (female adolescents aged 15 years had never had sexual intercourse). PHAN reports the percentage who have had sexual intercourse, and for

NCDHD that (20.6%) is significantly lower than the proportion for the state (38.5%); however, it is also double the 2020 target of 9.8%. This target is related to the goals for Maternal and Child Health, because infants born to teenage mothers, especially those younger than 15 years, are more likely to suffer from low birth weight, neonatal death, and sudden infant death syndrome. There appears to be a greater risk of child abuse, neglect, and behavioral and educational problems, not to mention the problems for the teenagers who are pregnant.

- Teenage births as a percent of total births is significantly lower for the HD when compared to the state.

Infant Mortality, Preterm Births, Birth Weight, Prenatal Care

In HP 2020, the baseline for infant death (in the first year of life) is 6.7 per 1,000 from 2006. The new target is 6.0 infant deaths per 1,000 live births. This is higher than the 2010 MCH objectives for both Nebraska and the United States, which was to reduce the infant mortality rate to no more than 4.5 infant deaths per 1,000 live births.

- The **Infant mortality rate** for the HD is 6.05, right on the HP 2020 target; further, the HD rate is that same as the state rate (5.75).
- The percent of mothers in the HD who receive **first trimester prenatal care** is 71.56%, which is comparable to the state rate but below the HP 2020 target of 77.9% (the 2010 Nebraska target was 90%). The proportion for Native Americans here is 40%.
- The percent of **low birth weights** (LBW) is 6.16%, which is comparable to the state rate of 7.07 and below the HP 202 target of 7.8% (NE 2010, 5%).
- Incidence of **preterm births** for the HD (8.21%) is comparable to the state rate (9.75%), and it is below the HP 2020 target of 11.4%.
- The incidence of **birth defects** (here it is the average rate per 1,000 live births and fetal deaths) for the HD is significantly lower than that of the state.
- **Neural tube defects** are birth defects of the brain and spinal cord, with the most common defects being spina bifida and anencephaly. The rate reported here represents the average incidence of neural defects per 1,000 live births and fetal deaths from 2004-2008. The rate for the HD is comparable to the state rate. **Both are higher than the target of .28 per 1,000.**
- For SIDS, the HD rate (1.13/1000) is more than two times the target (.5/1000)..
- Child and adolescent mortality for the HD is not different from the state rate. Note that PHAN reports data combined for ages 1-19. Target rates are set for subgroups, such as neonatal, ages 1-4, 10-14, 15-19. If those target rates are added together, the target sum is 110.6 per 100,000 population. The HD mortality rates for a comparable population appears much lower.

Table 14. Teenage Births & Infant mortality, preterm births, birth weight.

1.1.8. Maternal Child Health	NCDHD	NE	μ	2020 Goals
1.1.8.a. Sexual intercourse before age 15	20.6%	38.5%	-2.77428	9.8%
1.1.8.b. Total live births in 2005-2009	2644	133723		
1.1.8.c. Number of teen births in 2005-2009 (Ages 13-19)	164	11165		
Teen births as % of total live births (2005-2009)	6.2	8.35	-3.82583	

	NCDHD	NE	μ	2020 Goals
1.1.8.e. Infant mortality by R/E (2005-2009)	6.05	5.75	0.203431	6.0
Caucasian	5.82	5.72	0.067988	
Black	0	13.22	-5.91216	
Native American	12.82	10.66	1.075736	
Asian	0	5.31	-3.74695	
Hispanic	0	6.07	-4.00613	
1.1.8.f. First Trimester Prenatal Care x R/E - % of births (2005-2009)	71.56	72.02	-0.2787	77.9%
Caucasian	74.29	76.02	-1.02018	
Black	0	57.46	-38.9761	
Native American	39.74	45.91	-4.68225	
Asian	77.78	68.71	5.626022	
Hispanic	55.84	55.86	-0.01376	
1.1.8.g. Low birth weights x R/E - % of births (2005-2009) these are average yearly rates, according to doc	6.16	7.07	-0.5565	7.8%
Caucasian	6.2	6.56	-0.22855	
Black	0	13.25	-5.91887	
Native American	5.77	7.54	-1.04814	
Asian	0	8.46	-4.72951	
Hispanic	5.19	6.73	-0.96526	
1.1.8.h. Incidence of preterm birth x R/E - % of births (2005-2009)	8.21	9.75	-0.80195	11.4%
Caucasian	8.32	9.61	-0.67664	
Black	0	13.05	-5.87403	
Native American	7.69	10.14	-1.25106	
Asian	11.11	9.21	1.018016	
Hispanic	6.49	9.16	-1.43448	
1.1.8.i. Incidence of birth defects, 2004-2008 (Rate per 1,000 Live Births)	37.3	50.2	-2.96052	
1.1.8.j. Incidence of neural tube defects, 2004-2008	0.7	1	-0.48781	0.28
1.1.8.k. Incidence of SIDS (2005-2009)	1.13	0.79	0.622008	0.5
1.1.8.o. Child and adolescent mortality Death rate/100,000 population ages 1-19 (2005-2009)	47.88371	31.73479	0.980338	

IMMUNIZATION AND INFECTIOUS DISEASES

Table 15. Communicable Diseases

1.1.10. Communicable Disease Data (2004-2008)	NCDHD	NE	μ	HP 2020 Goals
1.1.10.a. Incidence of vaccine preventable diseases; Hepatitis A & B	3	16.2	-1.93425	
1.1.10.b. Adult immunization (65+)				
Pneumonia (2008)	62.8	70.7	-9.01897	18-64 high risk, 60% 65+, 90%
Pneumonia (2009)	67.8	69.1	-1.50122	
Influenza (2007)	74.3	76.8	-2.7384	18-64, 80%;' 18-64 high risk, 90%; 65+, 90%
Influenza (2008)	64.7	75.7	-12.1362	
Influenza (2009)	74	74	0	
1.1.10.c. Hospitalizations (inpatient)				
Pneumonia (2007-2008)	365.4	242.1	16.83536	
Influenza (2007-2008)	23.2	14	5.223728	16
1.1.9.ae. Hospitalizations - all leading causes (patients), 2007-2008	6929.8	7954.4	-6.77558	
1.1.10.e. Incidence rates age <18, all STD's (rate/100,000), 2005-2009	27.8	195.6	-7.07626	
1.1.10.f. Incidence rates age >17, all STD's (rate/100,000), 2005-2009	52.1	402.9	-5.62252	
1.1.10.g. Incidence of Genital Herpes (2005-2009)	4.3	54		
1.1.10.h. Incidence of HIV/AIDS	1.3	5.6		
1.1.10.i. Incidence of West Nile virus	13.1	7.8	1.274927	
1.1.10.j. Incidence of TB	0.4	1.8	-0.70105	

The goals in from HP 2020 with respect to immunizations vary by age and level of risk. Though the PHAN figures are for adults 65 plus, all goal levels are reported here.. Overall, for the HD, the participation in immunization has grown during the periods of report, but they are about one third below the 2020 target. .

Nebraska reported progress toward its immunization and infectious disease objectives.

- Adult immunizations (ages 65+) for influenza (74%) are significantly lower within the HD when compared to the state; however, the rate for immunization against pneumonia (67.8%) is not significantly different from that of the state.
- Within the HD, the incidence of STDs and Herpes are significantly lower than for the state. The incidence of West Nile Virus in the HD, though apparently higher than that of the state, is not statistically different.
- Hospitalizations for pneumonia and influenza are significantly higher when compared to the state.

QUALITY OF LIFE DATA

PHAN reports include responses to questions about *Quality of Life.* In Healthy People reports, this term is described generally in relation to various health indicators, without specific data. Because it is included in PHAN, and because the differences are significant, those data are presented here. Note that **responses** require careful reading because of negatives included in some questions. For the HD (2008), general health is worse than for the state (fewer respondents said their health is good to excellent); for physical health in the last month, the HD is worse than the state; further, an increasing proportion of adults (from 2007 to 2008) expressed concerns about their mental health during the past month.

Environmental Issues receive some attention in the PHAN Data. Table 16 illustrates several areas of concern:

1. The percent of NCDHD adults who describe their general health as good to excellent increased from 2008 to 2009, and was significantly higher than for the state.
2. The percent of HD adults who say their physical health was not good "in the last month" was significantly lower than that of the state in 2009, echoing the responses to the general health question (1.1.4.a).
3. The percent of children (Table 17) with elevated blood lead levels (of those tested) is significantly higher than for the state.
4. Because of the rural nature of the HD, there is very limited access to water that is fluoridated and access to community water. Also, the nitrate levels in water in NCDHD are significantly higher than for the state.
5. The effect of lack of fluoridation might be suggested in (1.1.5.d.) the Percent of adults aged 65-74 years who have had all their permanent teeth extracted in 2008, which is significantly higher than the state percent. BRFSS data also suggest that HD residents are "less likely than Nebraska adults overall to have their teeth cleaned in the last year."
6. In the categories represented in Table 18, the HD is significantly higher than the state. This includes: occupational injuries/illnesses/farm injuries; unintentional injury deaths, motor vehicle deaths, and work-related accidental death rates.

Table 16. Quality of Life Data

1.1.4. Quality of Life Data	NCDHD	NE	μ
1.1.4.a. General health good to excellent - 2007	89.1	88.4	1.389
General health good to excellent - 2008	86.8	88.6	-3.567
General health good to excellent - 2009	88.4	87.4	1.995
1.1.4.b. Ten or more days in the last month when physical health was not good - 2007	9.4	9.6	-1.204
Ten or more days in last month when physical health was not good - 2008	9	9.3	-1.835
Ten or more days in last month when physical health was not good - 2009	9.5	10.8	-7.378
1.1.4.c. Ten or more days in past month when mental health was not good - 2007	8.4	10	-9.437
Ten or more days in last month when mental health was not good - 2008	7.9	9.4	-9.125
Ten or more days in last month when mental health was not good - 2009	8.7	10.5	-10.360

Table 17. Quality of Life: Environmental Health

	NCDHD	NE	μ
1.1.6.c. Percent of population served by community water (2009)	64.66	83.09	-42.9541
1.1.6.d. Childhood Blood Lead Levels (2007-2008)--# Elevated	13	857	
# of Children Tested	221	48444	
% with Elevated Blood Lead Levels	5.9	1.8	4.54301
1.1.6.e. Nitrate levels in community water system (2005-2009)	3.2	2.9	3.742648
1.1.6.f. Percent of population receiving optimally fluoridated water (2007)	36.15	68.19	-82.4304
1.1.5.c. Percent of 35-44 age group with no extractions - 2008	70.8	72.7	-1.41163
1.1.5.d. Percent of adults aged 65-74 years who have had all their permanent teeth extracted - 2008	25.1	13.5	20.50913

Table 18. Injuries and motor vehicle deaths

	NCDHD	NE	μ
1.1.9.z. Incidence of occupational injuries/illnesses/farm injuries			
1.1.9.aa. Unintentional injury deaths, 2005-2009	56.9	36.5	1.991497
1.1.9.ab. Motor vehicle deaths and rates, 2005-2009	27.6	14.7	1.98439
1.1.9.ac. Homicides and rates, 2005-2009	0.9	3.4	-0.79964
1.1.9.ad. Work-related accidental death rates, 2005-2009	5.5	1.1	2.4743